



## UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.	
10/594,075	08/14/2007	Sergei A. Svarovsky	NIHC-6039	2177	
89858	7590	12/05/2011			
Woodcock Washburn LLP	Ott-NIH	EXAMINER			
Ott-NIH	Cira Centre, 12th Floor	HAQ, SHAFIQUL			
2929 Arch Street	Philadelphia, PA 19104	ART UNIT	PAPER NUMBER		
		1641			
NOTIFICATION DATE	DELIVERY MODE				
12/05/2011	ELECTRONIC				

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

[cofficemonitor@woodcock.com](mailto:cofficemonitor@woodcock.com)

**Advisory Action  
Before the Filing of an Appeal Brief**

<b>Application No.</b>	<b>Applicant(s)</b>
10/594,075	SVAROVSKY ET AL.
<b>Examiner</b>	<b>Art Unit</b>
SHAFIQUL HAQ	1641

**--The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

THE REPLY FILED 08 November 2011 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE.

1.  The reply was filed after a final rejection, but prior to or on the same day as filing a Notice of Appeal. To avoid abandonment of this application, applicant must timely file one of the following replies: (1) an amendment, affidavit, or other evidence, which places the application in condition for allowance; (2) a Notice of Appeal (with appeal fee) in compliance with 37 CFR 41.31; or (3) a Request for Continued Examination (RCE) in compliance with 37 CFR 1.114. The reply must be filed within one of the following time periods:

a)  The period for reply expires 4 months from the mailing date of the final rejection.  
 b)  The period for reply expires on: (1) the mailing date of this Advisory Action, or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection.

Examiner Note: If box 1 is checked, check either box (a) or (b). ONLY CHECK BOX (b) WHEN THE FIRST REPLY WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**NOTICE OF APPEAL**

2.  The Notice of Appeal was filed on \_\_\_\_\_. A brief in compliance with 37 CFR 41.37 must be filed within two months of the date of filing the Notice of Appeal (37 CFR 41.37(a)), or any extension thereof (37 CFR 41.37(e)), to avoid dismissal of the appeal. Since a Notice of Appeal has been filed, any reply must be filed within the time period set forth in 37 CFR 41.37(a).

**AMENDMENTS**

3.  The proposed amendment(s) filed after a final rejection, but prior to the date of filing a brief, will not be entered because  
 (a)  They raise new issues that would require further consideration and/or search (see NOTE below);  
 (b)  They raise the issue of new matter (see NOTE below);  
 (c)  They are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or  
 (d)  They present additional claims without canceling a corresponding number of finally rejected claims.

NOTE: \_\_\_\_\_ (See 37 CFR 1.116 and 41.33(a)).

4.  The amendments are not in compliance with 37 CFR 1.121. See attached Notice of Non-Compliant Amendment (PTO-324).

5.  Applicant's reply has overcome the following rejection(s): rejections under 35 USC 112 second paragraphs.

6.  Newly proposed or amended claim(s) \_\_\_\_\_ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).

7.  For purposes of appeal, the proposed amendment(s): a)  will not be entered, or b)  will be entered and an explanation of how the new or amended claims would be rejected is provided below or appended.

The status of the claim(s) is (or will be) as follows:

Claim(s) allowed: \_\_\_\_\_

Claim(s) objected to: \_\_\_\_\_

Claim(s) rejected: 95, 98, 150 and 155

Claim(s) withdrawn from consideration: 99-149 and 151-154.

**AFFIDAVIT OR OTHER EVIDENCE**

8.  The affidavit or other evidence filed after a final action, but before or on the date of filing a Notice of Appeal will not be entered because applicant failed to provide a showing of good and sufficient reasons why the affidavit or other evidence is necessary and was not earlier presented. See 37 CFR 1.116(e).

9.  The affidavit or other evidence filed after the date of filing a Notice of Appeal, but prior to the date of filing a brief, will not be entered because the affidavit or other evidence failed to overcome all rejections under appeal and/or appellant fails to provide a showing a good and sufficient reasons why it is necessary and was not earlier presented. See 37 CFR 41.33(d)(1).

10.  The affidavit or other evidence is entered. An explanation of the status of the claims after entry is below or attached.

**REQUEST FOR RECONSIDERATION/OTHER**

11.  The request for reconsideration has been considered but does NOT place the application in condition for allowance because:  
See Continuation Sheet

12.  Note the attached Information Disclosure Statement(s). (PTO/SB/08) Paper No(s). \_\_\_\_\_

13.  Other: \_\_\_\_\_

/SHAFIQUL HAQ/  
Primary Examiner, Art Unit 1641

Continuation of 11. does NOT place the application in condition for allowance because: Applicant's arguments and amendments filed 11 August 2011 have been fully considered and are persuasive to overcome the rejections under 35 USC 112 but they are not persuasive to overcome the rejections under 35 USC 103. Notwithstanding applicant's assertions to the contrary, applicant's amendments have not obviated rejections under 35 USC 103 for the reasons of record as described in the office action mailed 7/8/2011 (item numbers 8 and 9).

Applicants contend that there is no combination of the references that teaches quantum dots capable of luminescencing which comprise a mercapto triethylene glycol group that does not have an associated charge in solution. Applicants argue that the cited references teach the use of ethylene glycol groups as linkers, and not as separate luminescence promoters bonded to the surface of the nanocrystalline core. Applicants argue that the ethylene glycol groups of the claimed invention is used for a different purpose - not as linker to link ligands to nanoparticles, but as luminescence promoters to make quantum dots luminescence. Applicants further assert that the thiol group of an ethylene group does not make quantum dots luminesce, rather functional groups of the ethylene groups do and accordingly, the Applicants' recognition that freely-bonded (non-linker) ethylene glycol groups (such as mTEG) make the quantum dots luminesce constitutes a non-obvious inventive step.

Applicants' arguments have fully been considered but are not persuasive to overcome the rejection. Notwithstanding applicant's assertions to the contrary, Zhang et al do not teach that the mercaptoethylene glycol be used as linkers. Zhang et al teach di, tri and tetraethylene glycol thiol molecules (i.e. luminescent promoter that does not have an associated charge in solution) and coupling of nanoparticles with the thiolated ethylene glycol. Zhang et al teach that these types of nanoparticles provide a fundamental starting material for designing hybrid materials composed of metallic nanoparticles and biomolecules and would be useful for synthesis of mixed monolayer of ethylene glycol and a functional ligand to eliminate nonspecific interactions and provide specific interaction at the same time (last page, 2<sup>nd</sup> col., lines 17-21). As described in the rejection, the references of Lin et al and Bawendi et al are cited to show that semiconducting nanoparticles are art recognised alternative for gold nanoparticles and thus substitution of gold nanoparticle of Zhang et al with the semiconducting nanoparticles would be obvious to one of ordinary skill in the art and the coating with mercaptoethylene glycol (i.e. luminescent promoter that does not have an associated charge in solution) for reducing non-specific binding would also inherently make the quantum dots luminesce.

The examiner recognizes that references cannot be arbitrarily combined and that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the common knowledge or common sense generally available to one of ordinary skill in the art. See: In re Nomiya, 184 USPQ 607 (CCPA 1975); In re Fine, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); or, In re Jones, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). However, there is no requirement that the claimed invention or a motivation to make the modification be expressly articulated in any one or all of the references. The test for combining references is what the combination of disclosures, taken as a whole, would suggest to one of ordinary skill in the art. See: In re Keller, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); or, In re McLaughlin, 170 USPQ 209 (CCPA 1971). References are evaluated by what they suggest to one versed in the art, rather than by their specific disclosures. See: In re Bozek, 163 USPQ 545 (CCPA 1969). A person of ordinary skill in the art, using common knowledge and common sense, is capable of fitting the teachings of multiple references together like pieces of a puzzle, regardless of the specific problem being addressed by the individual references. Any need or problem known at the time of the invention can provide a reason for combining elements of the different references. A person of ordinary skill in the art is also a person of ordinary creativity. In this case, for the reasons of record, ample motivations to combine the references with an extremely reasonable expectation of success have been set forth and the combination of the references would provide/suggest quantum dots with mercaptoethylene glycol that does not have an associated charge in solution and the quantum dot would be capable of luminescencing.

Moreover recognition of the problem is not the only factor. An invention may be obvious if the prior art has different reasons for doing what applicant has done. "It has long been held that a rejection under 35 USC 103 based upon a combination of references is not deficient solely because the references are combined based upon a reason or technical consideration which is different from that which resulted in the claimed invention." Ex parte Raychem Corp. 17 USPQ 2d 1417, 1424 (BPAI 1990). Cites In re Kronig 190 USPQ 425 (CCPA 1976); In re Gershon 152 USPQ 602 (CCPA 1967). See also In re Beattie 24 USPQ 2d 1040, 1042 (Fed. Cir. 1992); In re Wiseman 201 USPQ 638 (CCPA 1979); In re May 197 USPQ 601 (CCPA 1978); In re Lintner 173 USPQ 560, 562 (CCPA 1972); In re Tomlinson 150 USPQ 623 (CCPA 1966).